

## Hydrologic Model Manager

<b>Short Name</b>	TOPKAPI Model
<b>Long Name</b>	
<b>Description</b>	
<b>Model Type</b>	Semi-distributed rainfall-runoff model
<b>Model Objectives</b>	(1) To take advantage of distributed models containing physically meaningful parameters, (2) to overcome the inconsistency of neglecting the transient phase as in the TOPMODEL, (3) to incorporate the possibility of obtaining a lumped version of the same model by integrating the processes over increasing size domains without the need for recalibration, and (4) to allow for the application of the model at increasing spatial scale from hillslope to catchment scale to GCMs.
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<b>Tech Contact</b>	Professor E. Todini
<b>Model Structure</b>	TOPKAPI is the acronym of: TOPographic Kinematic Approximation and Integration. It is based on the idea of combining the kinematic approach with the topography of the basin described by means of a lattice of square cells over which the model equations are integrated. The model is structured around three modules which represent the soil component, the overland flow component and flow through the drainage network. Thus, the model comprises three cascades one for each component. The model is available in lumped form as well as semi-distributed form.
<b>Interception</b>	
<b>Groundwater</b>	
<b>Snowmelt</b>	
<b>Precipitation</b>	
<b>Evapo-transpiration</b>	
<b>Infiltration</b>	
<b>Model Paramters</b>	It has six parameters for each soil class, one parameter for each Strahler order, and other parameters for evapotranspiration, and other processes.
<b>Spatial Scale</b>	Variable, from a hillslope scale to the catchment scale
<b>Temporal Scale</b>	Continuous
<b>Input Requirements</b>	DEM, rainfall, soils maps, land use maps, and rainfall
<b>Computer Requirements</b>	PC with windows
<b>Model Output</b>	Discharge hydrograph
<b>Parameter Estimatr Model Calibrtn</b>	Parameter by optimization
<b>Model Testing Verification</b>	The model has been applied to a number of basins in Italy and other countries and the results have been promising.
<b>Model Sensitivity</b>	Not given
<b>Model Reliability</b>	Not given but the model seems to reproduce good results
<b>Model Application</b>	Reno River, Italian basins

<b>Documentation</b>	Not available in the public domain but it can be obtained from Professor Todini.
<b>Other Comments</b>	<p>The model has good potential for practical application.</p> <p>References:</p> <p>Ciarapica, L., and Todini, E., 1998. TOPKAPI-Un modello afflussi-deflussi applicabile dalla scala di versante alla scala di bacino (in Italian). Proceedings, XXVI Convegno di Idraulica e Costruzioni Idrauliche, Vol. II, pp. 49-60.</p>
<b>Date of Submission</b>	5/11/2001 8:12:15 AM
<b>Developer</b>	
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<b>Contact Organization</b>	